

AMENDMENTS TO THE CLAIMS

1-16. (canceled)

17. (previously presented) A method of producing an amplified DNA molecule comprising

i) amplifying a gene segment of interest by polymerase chain reaction, using a reaction solution comprising:

a template comprising a first double-stranded or single-stranded DNA fragment cloned in a vector, said DNA fragment comprising a sequence encoding a protein or a portion thereof;

a first sense primer that anneals with a 5' terminal region of the protein-coding sequence;

a second sense primer which has a 3' terminal sequence that is the same as at least a 5' portion of the first sense primer and a 5' terminal sequence that is the same as a desired nucleotide sequence; and

a first anti-sense primer which anneals with a portion of the vector sequence downstream from the protein-coding region;

thereby obtaining a first amplified DNA fragment; and

ii) amplifying the first amplified DNA fragment by polymerase chain reaction, using a reaction solution comprising:

a) a template mixture comprising

aa) the first amplified DNA fragment,

ab) a second double-stranded or single-stranded DNA fragment comprising a sequence hybridizing with the 5' terminal region of the first amplified DNA fragment, and

ac) a third double-stranded or single-stranded DNA fragment comprising a sequence hybridizing with the 3' terminal region of the first amplified DNA fragment;

b) a third sense primer which anneals with the 5' terminal region of the second DNA fragment; and

c) a second anti-sense primer which anneals with the 3' terminal region of the third DNA fragment;